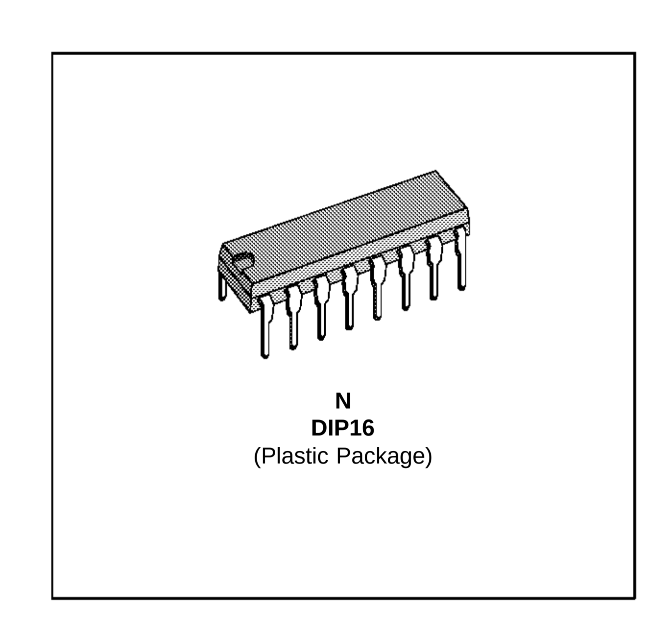


TDB7910
TDA7910

MEDIUM POWER SINGLE BIPOLAR OPERATIONAL AMPLIFIER

- OUTPUT CURRENT UP TO 500 mA
- OFFSET VOLTAGE NULL CAPABILITY
- SHORT-CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION
- PLASTIC PACKAGE FOR EASY ASSEMBLY



N
DIP16
(Plastic Package)



DESCRIPTION

The TDB7910 and TDA7910 are internally compensated medium power operational amplifiers intended for use in those applications requiring load currents of several hundred milliamperes. Applications include servo amplifiers, driver interfaces, precision power comparators and motor speed control.

These amplifiers are designed to operate from a single or dual power supplies and the input common-mode range includes the negative supply if balance inputs are tied to the negative supply.

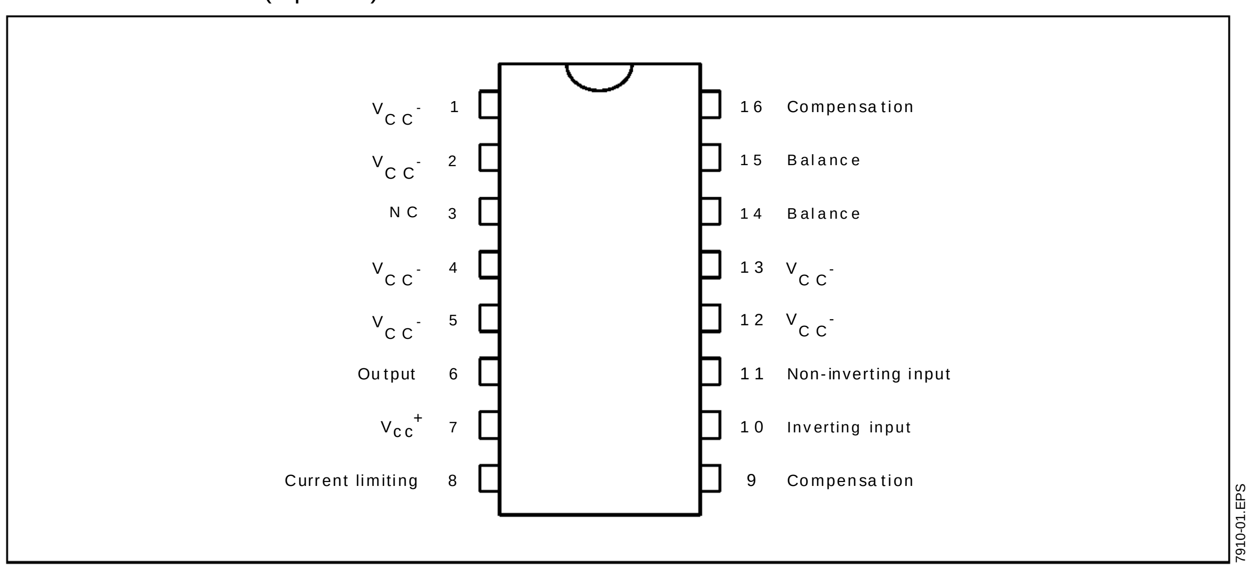
The TDB7910 and TDA7910 are thermal overload and short-circuit protected.

ORDER CODES

Part Number	Temperature Range	Package N
TDB7910	0^oC, $+70^oC$	•
TDA7910	-40^oC, $+105^oC$	•
Example : TDB7910N		

7910-01.TBL

PIN CONNECTIONS (top view)



SCHEMATIC DIAGRAM

Compensation
VCC+
Non-inverting Input
Inverting Input
Current limiting
Output
Balance
Compensation
VCC-
Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9 Q11 Q12 Q13 Q14 Q15 Q16 Q17 Q18 Q19 Q20 Q21 Q22 Q23 Q24 Q25 Q26 Q27 Q28 Q29 Q30 Q31
R1 R2 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R15 R17
C1 C2 D1 D2

7910-02.EPS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V_{CC}	Supply Voltage		± 18	V
V_i	Input Voltage		± 15	V
V_{id}	Differential Input Voltage		± 30	V
I_O	Output Current*		0.75	A
P_{tot}	Power Dissipation		7.5	W
T_{oper}	Operating Free-air Temperature Range	TDB7910 TDA7910	0 to +70 -40 to +105	°C
T_{stg}	Storage Temperature Range		-65 to +150	°C

7910-02.TBL

* Under short-circuit conditions, the safe operating area and dc power dissipation limitations must be observed.



ELECTRICAL CHARACTERISTICS

V_{CC} = ±15V, T_{amb} = 25°C (unless otherwise specified)

Symbol	Parameter	TDB7910 - TDA7910			Unit
		MIn.	Typ.	Max.	
V_{io}	Input Offset Voltage T_{amb} = +25°C $T_{min.} \leq T_{amb} \leq T_{max.}$		2	6 7.5	mV
I_{io}	Input Offset Current T_{amb} = +25°C $T_{min.} \leq T_{amb} \leq T_{max.}$		20	200 300	nA
I_{ib}	Input Bias Current T_{amb} = +25°C $T_{min.} \leq T_{amb} \leq T_{max.}$		80	500 800	nA
A_{vd}	Large Signal Voltage Gain (R_L = 47Ω, V_o = ±10V) T_{amb} = +25°C $T_{min.} \leq T_{amb} \leq T_{max.}$	20 15			V/mV
I_{CC}	Supply Current - (no load) T_{amb} = +25°C $T_{min.} \leq T_{amb} \leq T_{max.}$		10	20 25	mA
V_{icm}	Input Common Mode Voltage Range	±12	±13		V
I_{OS}	Output Short Circuit Current (R_{SC} = 1.5Ω)		0.5		A
SVR	Supply Voltage Rejection Ratio	77			dB
CMR	Common Mode Rejection Ratio	70			dB
Z_i	Input Impedance	0.3			MΩ
V_{OPP}	Output Voltage Swing (R_{SC} = 0, R_L = 47Ω) T_{amb} = +25°C $T_{min.} \leq T_{amb} \leq T_{max.}$	±11 ±10	±12		V
V_{ior}	Offset Voltage Adjustment Range		±15		mV
SR	Slew Rate (R_L = 47Ω, T_{amb} = +25°C , A_V = 1, V_{in} = ±10V)		0.5		V/µs
GBP	Gain Bandwidth Product (C_C = 0, R_L = 47Ω, C_L = 100pF, f = 100kHz, V_{in} = 10mV)		0.5		MHz
R_{TH}	Thermal Resistance		60		°C/W

7910-03.TBL

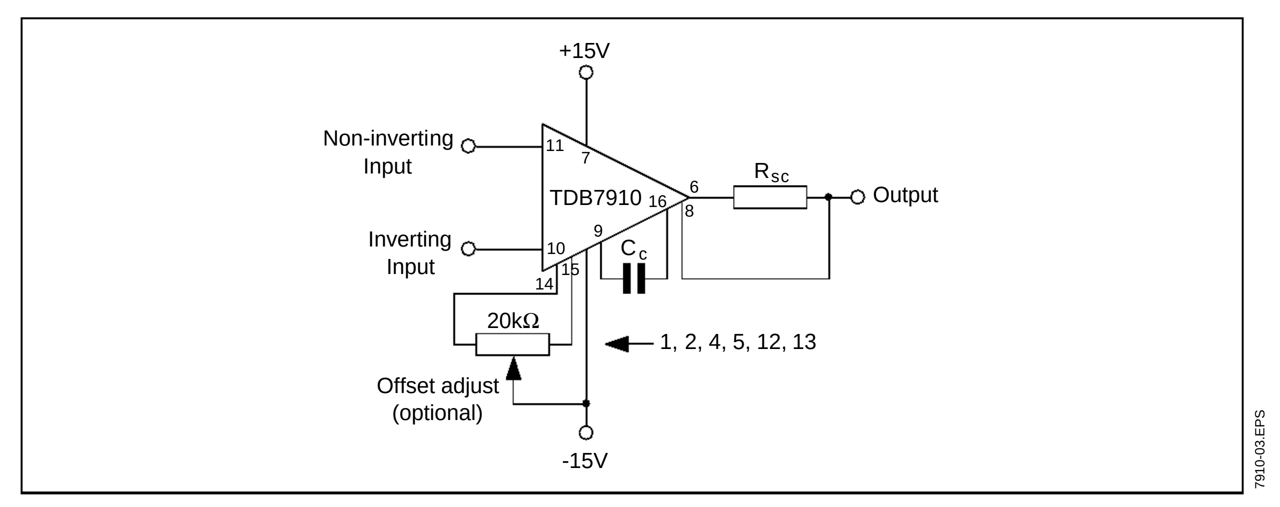
ELECTRICAL CHARACTERISTICS

V_{CC}^+ = 10V, V_{CC}^- = 0V, T_{amb} = 25°C, V_o = +5V (unless otherwise specified)

Symbol	Parameter	TDB7910 - TDA7910			Unit
		Min.	Typ.	Max.	
V_{io}	Input Offset Voltage T_{amb} = +25°C $T_{min.} \leq T_{amb} \leq T_{max.}$			6 7.5	mV
A_{vd}	Large Signal Voltage Gain (R_L = 47Ω, V_o = 1 to 5V) T_{amb} = +25°C, $T_{min.} \leq T_{amb} \leq T_{max.}$	20 15			V/mV
I_{CC}	Supply Current - (no load) T_{amb} = +25°C $T_{min.} \leq T_{amb} \leq T_{max.}$		5	20 25	mA
V_{OH}	High Level Output Voltage (R_{SC} = 0, R_L = 47Ω) T_{amb} = +25°C $T_{min.} \leq T_{amb} \leq T_{max.}$	6 5	8		V
V_{OL}	Low Level Output Voltage T_{amb} = +25°C $T_{min.} \leq T_{amb} \leq T_{max.}$		2	3 3	V
GBP	Gain Bandwidth Product (C_C = 0, R_L = 47Ω, C_L = 100pF, f = 100kHz, V_{in} = 10mV)		1		MHz

7910-04.TBL

BASIC DIAGRAM



INPUT BIAS CURRENT

INPUT BIAS CURRENT (nA)

V_{CC} = ± 15V

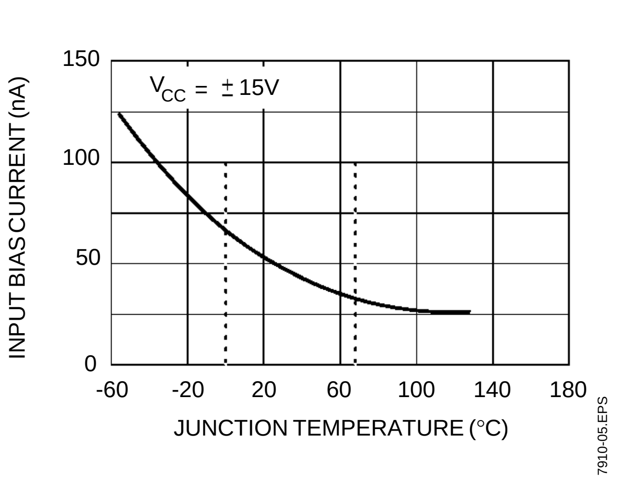
350
300
250
200
150
100
50

-60 -20 20 60 100 140 180

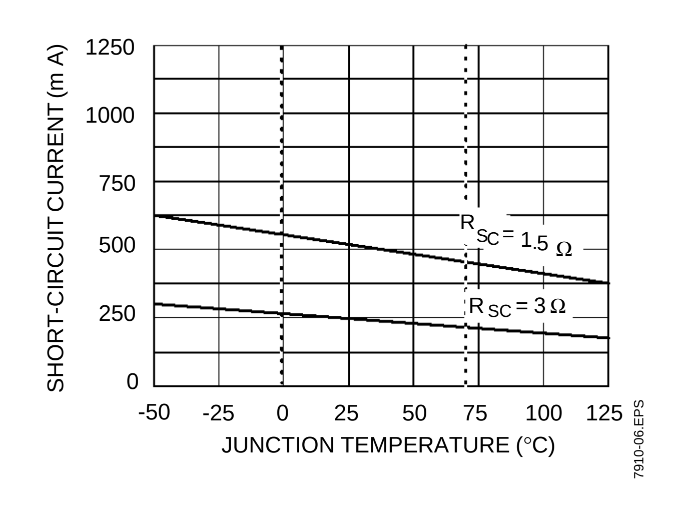
JUNCTION TEMPERATURE (°C)

7910-04.EPS

INPUT OFFSET CURRENT

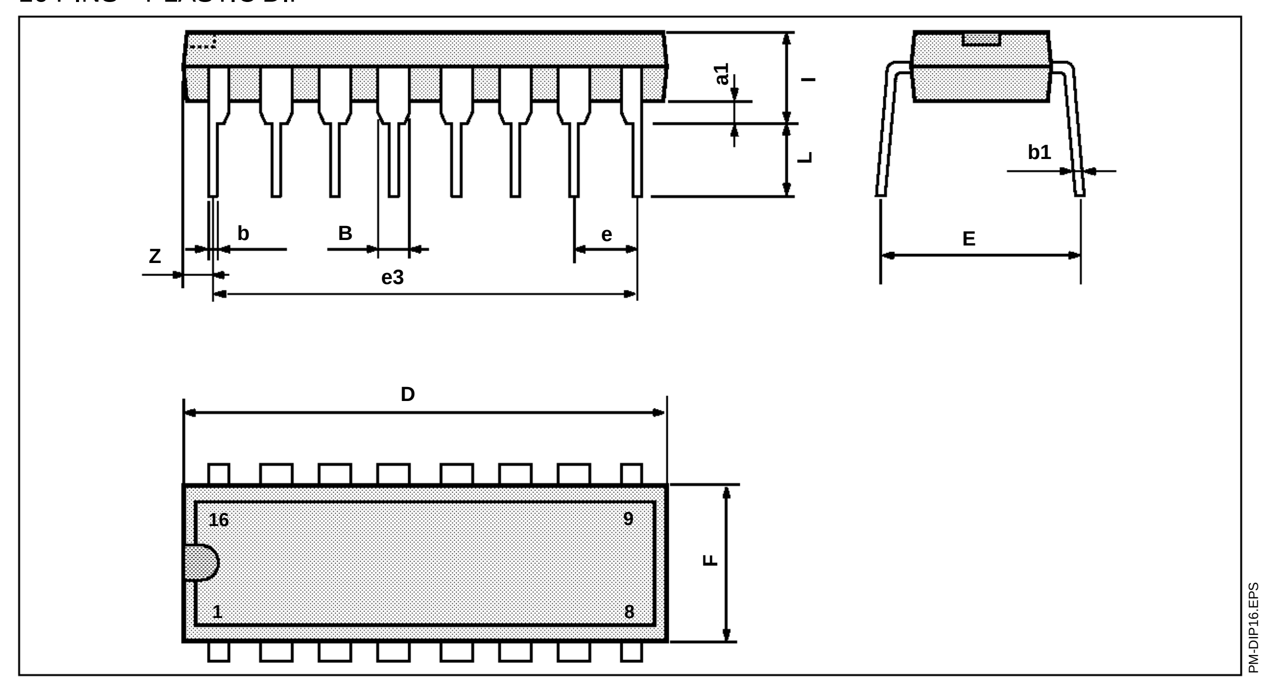


SHORT-CIRCUIT CURRENT



PACKAGE MECHANICAL DATA

16 PINS - PLASTIC DIP



Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
a1	0.51			0.020		
B	0.77		1.65	0.030		0.065
b		0.5			0.020	
b1		0.25			0.010	
D			20			0.787
E		8.5			0.335	
e		2.54			0.100	
e3		17.78			0.700	
F			7.1			0.280
i			5.1			0.201
L		3.3			0.130	
Z			1.27			0.050

DIP16.TBL

ORDER CODE :

